

Claims

[c1] What is claimed is:

1.A non-contact clamping mechanism for use in an optical disk drive comprising a turntable, the non-contact clamping mechanism comprising:

an upper cover comprising a first hole;

a clamping device installed above the first hole of the upper cover for combining with the turntable so as to fix an optical disk;

an upper plate for covering the first hole of the upper cover to prevent the clamping device from departing from the optical disk drive when reading the optical disk; and

a magnetic element attached to the upper plate for providing a real-time preload to the clamping device.

[c2] 2.The non-contact clamping mechanism of claim 1 wherein the clamping device comprises a first magnetic element for generating a mutually repulsive force between the magnetic element and the first magnetic element.

[c3] 3.The non-contact clamping mechanism of claim 2 wherein the clamping device further comprises:

a clamp yoke;
a second magnetic element for combining with the clamp yoke; and
a clamp body for combining with the clamp yoke and the second magnetic element; and
wherein the first magnetic element is connected to the clamp body.

[c4] 4.The non-contact clamping mechanism of claim 1 wherein the magnetic element is a magnet.

[c5] 5.The non-contact clamping mechanism of claim 3 wherein the first magnetic element and the second magnetic element are magnets.

[c6] 6.The non-contact clamping mechanism of claim 1 wherein the magnetic element is in the form of a circular ring.

[c7] 7.The non-contact clamping mechanism of claim 1 wherein the first magnetic element and the second magnetic element are in the form of circular rings.

[c8] 8.A non-contact clamping mechanism for use in an optical disk drive comprising a turntable, the non-contact clamping mechanism comprising:
an upper cover comprising a first hole;
a clamp yoke having a second hole;

a first magnetic element;
a clamp body installed above the first hole of the upper cover for combining with the clamp yoke and the first magnetic element and combining with the turntable so as to fix an optical disk;
a second magnetic element connected to the clamp body;
an upper plate for covering the first hole of the upper cover to prevent the clamp body from departing from the optical disk drive when reading the optical disk; and
a magnetic element attached to the upper plate for providing a real-time preload to the clamp body.

[c9] 9.The non-contact clamping mechanism of claim 8 wherein the second magnetic element and the third magnetic element are deposed to generate a mutually repulsive force between the second magnetic element and the third magnetic element.

[c10] 10.The non-contact clamping mechanism of claim 8 wherein the first magnetic element, the second magnetic element, and the third magnetic element are magnets.

[c11] 11.The non-contact clamping mechanism of claim 8 wherein the first magnetic element, the second magnetic element, and the third magnetic element are in the form of circular rings.

- [c12] 12. A clamping device for use in a non-contact clamping mechanism to work with a turntable for fixing a disk in a disk drive, the disk drive comprising a magnetic element attached to an upper cover, the clamping device comprising:
- a clamp body; and
 - a first magnetic element deposited in the clamp body for generating a mutually repulsive force between the magnetic element and the first magnetic element to provide a real-time preload to the clamping device.
- [c13] 13. The clamping device of claim 12, wherein the upper cover comprising:
- a first hole for installing the clamping device; and
 - an upper plate for covering the first hole of the upper cover to prevent the clamping device from departing from the optical disk drive when in operating;
- wherein the first magnetic element is attached to the upper plate.
- [c14] 14. The clamping device of claim 12 further comprising:
- a clamp yoke; and
 - a second magnetic element for providing a magnetic force toward the turntable;
- wherein the clamp yoke and the second magnetic element are deposited on the clamp body.

- [c15] 15.The clamping device of claim 12 wherein the magnetic element and the first magnetic element are magnets.
- [c16] 16.The clamping device of claim 14 wherein the second magnetic element is a magnet.